IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: **DONALD GILBERT CARPENTER** **Art Unit: 2834**

Serial No.: **09/935,936**

Filed: **August 23, 2001**

For: **Energy Conversion Technique** **Examiner: Nicolas Ponomarenko**

SECOND REQUEST FOR REINSTATEMENT OF THE APPEAL

Honorable Commissioner of Patents and Trademarks
Post Office Box 1450
Alexandria, VA 22313-1450

Sir:

In response to the Official Action mailed from the Patent and Trademark Office on September 15, 2004, applicant exercises the second option offered not only on page 2 of the September 15 Official Action but also in 37 C.F.R. ¶1.193(b)(2), that is to hereby respectfully lodge this Second Request for Reinstatement of the Appeal filed October 2, 2003. Applicant accordingly submits this Second Request for Reinstatement of the Appeal because the September 15 Official Action without any legal authority and in disregard of applicant's right to appeal to the Board of Patent Appeals and Interferences under 35 U.S.C. ¶134(a) the twice rejected Claims 1 through 8, reopened prosecution and issued a further rejection of Claims 1 through 8 now standing in this case.

In summary, on June 29, 2004, applicant filed a Request to Reinstate the Appeal from the second and final rejection of all claims standing in the case that was mailed from the Patent and Trademark Office on July 24, 2003. A Notice of Appeal, with proper fee, was filed on October 2, 2003. On January 7, 2004, applicant filed, in triplicate, an Appeal Brief.

On June 7, 2004, a "Communication Re: Appeal" was mailed from the Patent and Trademark Office purporting to dismiss the Appeal and reopen prosecution. 37 C.F.R. ¶1.114 was cited as the authority for taking this action.

On June 29, 2004, applicant filed the first Request for Reinstatement of the Appeal with a Supplemental Appeal Brief (in triplicate), urging, however, that the application continued under appeal because 37 C.F.R. ¶1.114, the paragraph on which the attempt to dismiss the appeal was based, applies only to applications in which a request for continued examination has been filed. Because no request for continued examination has been lodged in this matter, it was clear that the effort to return this case to examination status failed. Nevertheless, to advance the prosecution of this application and without waiving any of applicant's rights through the incorrect reliance on 37 C.F.R. ¶1.114, applicant filed the first Reinstatement Request and Supplemental Appeal Brief noted above.

Responding to applicant's first Supplemental Appeal Brief, an Official Action issued from the Patent and Trademark Office on September 15, 2004. The September 15 Official Action, although citing applicant's June 29, 2004, First Supplemental Appeal Brief, nevertheless:

1. Failed to address the issue of the incorrect legal authority on which the dismissal of the Appeal was attempted;
2. Failed to file a written answer to the Appeal Brief as required under 37 C.F.R. ¶1.193(a)(1); and
3. Raised new grounds of rejection in the September 15 Official Action in violation of 37 C.F.R. ¶1.193(a)(2) which specifically states "an examiner's answer must not include a new ground of rejection".

In the September 15 Official Action, however, it was stated that:

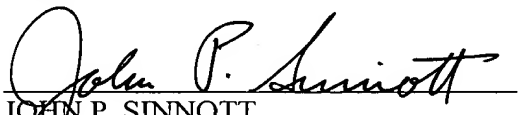
> To avoid abandonment of the application, appellant must exercise one of the following two options:
>
> ****
>
> (2) request reinstatement of the Appeal
>
> If reinstatement of the Appeal is requested, such request must be accompanied by a supplemental appeal brief, but no new amendments, affidavits (37 C.F.R. ¶1.130, 1.131 or 1.132) or other evidence are permitted. See 37 C.F.R. ¶1.193(b)(2).

Accordingly, and as stated above to advance the prosecution of this case, applicant hereby selects the second of the two available options and lodges this Second Request for Reinstatement of the Appeal.

For completeness' sake, the Second Supplemental Appeal Brief, filed on even date herewith, does address the new grounds of rejection raised in the September 15 Official Action while in compliance with 37 C.F.R. ¶1.193(b)(2)(ii) submitting no new amendments, affidavits* or other evidence.

In summary, reinstatement of the Appeal filed October 2, 2003, is earnestly solicited.

Respectfully submitted,



JOHN P. SINNOTT
Attorney for Applicant
Registration No. 21,001

* The Board's attention is invited, however, to the Rule 132 Declaration that applicant filed on March 7, 2003, in response to the first Official Action in this case, mailed from the Patent and Trademark Office on November 7, 2002.

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Applicant:	**DONALD GILBERT CARPENTER**	**Art Unit:**	**2834**
Serial No.:	**09/935,936**		
Filed:	**August 23, 2001**		
For:	**Energy Conversion Technique**	**Examiner:**	**Nicolas Ponomarenko**

SECOND SUPPLEMENTAL APPEAL BRIEF UNDER 37 CFR §1.193(b)(2)(ii)(in triplicate)

Honorable Commissioner of Patents
Post Office Box 1450
Alexandria, Virginia 22313-1450

Sir:

In response to the Official Action mailed from the Patent and Trademark Office on September 15, 2004, submitted herewith in triplicate is applicant's Second Supplemental Appeal Brief under 37 C.F.R. §1.193(b)(2)(ii).

In the September 15 Official Action, questions were raised with respect to the Drawing, the Specification and the Claims. Accordingly, each of these sets of questions are treated below under their respective subject headings, keeping in mind, moreover, that 37 C.F.R. §1.193(b)(2) forbids applicant from introducing new amendments, affidavits under Rule 1.130, 1.131 or 1.1321, or other evidence.[1]

Toward this end, the questions raised in the September 15 Official Action are addressed herein through each of the topics identified in the Official Action under consideration: Drawings [sic]; Specification; Claim Rejections – 35 U.S.C. ¶112; and Claim Rejections – 35 U.S.C. ¶101.

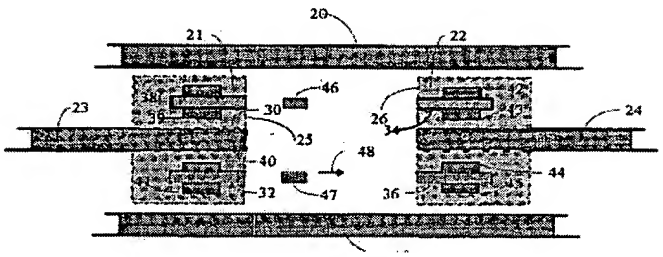
DRAWING

The drawing is objected to under 37 C.F.R. ¶1.83(a). This rejection alleges that the drawing as filed fails to show every feature of the invention specified in the claims.

More specifically, the Official Action states that the "means for converting the kinetic energy" must be shown in the drawing. This recited feature of independent Claim 1, moreover, carries through all of the balance of seven claims that depend directly or indirectly on Claim 1. Applicant respectfully submits that this feature of the invention is illustrated in Figure 3 of the drawing, reproduced below:

[1] The Board's attention is invited, however, to the Rule 132 Declaration that applicant filed on March 7, 2003, in response to the first Official Action in this case, mailed from the Patent and Trademark Office on November 7, 2002.

Fig. 3



The complete limitation stated in Claim 1 is as follows:

> ...means for converting the kinetic energy from said object at second [sic] moving system into electrical energy.

Turning now to paragraph 77 of the Specification as filed:

> For instance, if the objects 46, 47 are magnetized when they are received in the openings 34, 36 with which the ejectors 38, 40 are in alignment, and the reception devices 43, 44 are electrically conductive coils, the magnetic fields of the objects 46, 47 will, when moving past the coils that comprise the reception devices 43, 44, generate electrical pulses in the coils, in accordance with the energy transferred.

Applicant respectfully submits that the "means for converting the kinetic energy...into electrical energy" could not be more clearly described and shown in the drawing – transformers, dynamos, electrical motors, the list is almost endless, each rely on the interaction between a magnetic field and an electrical conductor. Consequently, applicant urges that this feature of the invention is illustrated in Fig. 3 of the drawing and, as such, this objection should be withdrawn.

Further alleged enumerated deficiencies in the drawing for failure to identify elements are as follows:

a) "Sleeve or Tube 73" (from Fig. 8B) in Fig. 6, as described in the specification (page 33, line 9)

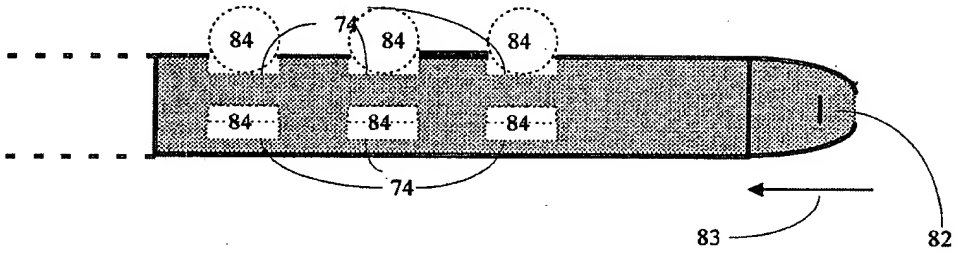
Fig. 8B does show the sleeve or tube in question and only through an error in checking the drawing was the reference numeral 73 omitted from Fig. 8B. Thus, as stated in paragraph 100 of the Specification:

> Each tube 73 has openings 74 down its sides...

The print of Fig. 8B reproduced below does show the openings 74 in the tube in question. Clearly, only minor amendment to the drawing would be required to add reference numeral 73 to Fig.

8B or, in the alternative, to delete reference numeral 73 from the Specification. In either case, no "new matter" would be added to the application.

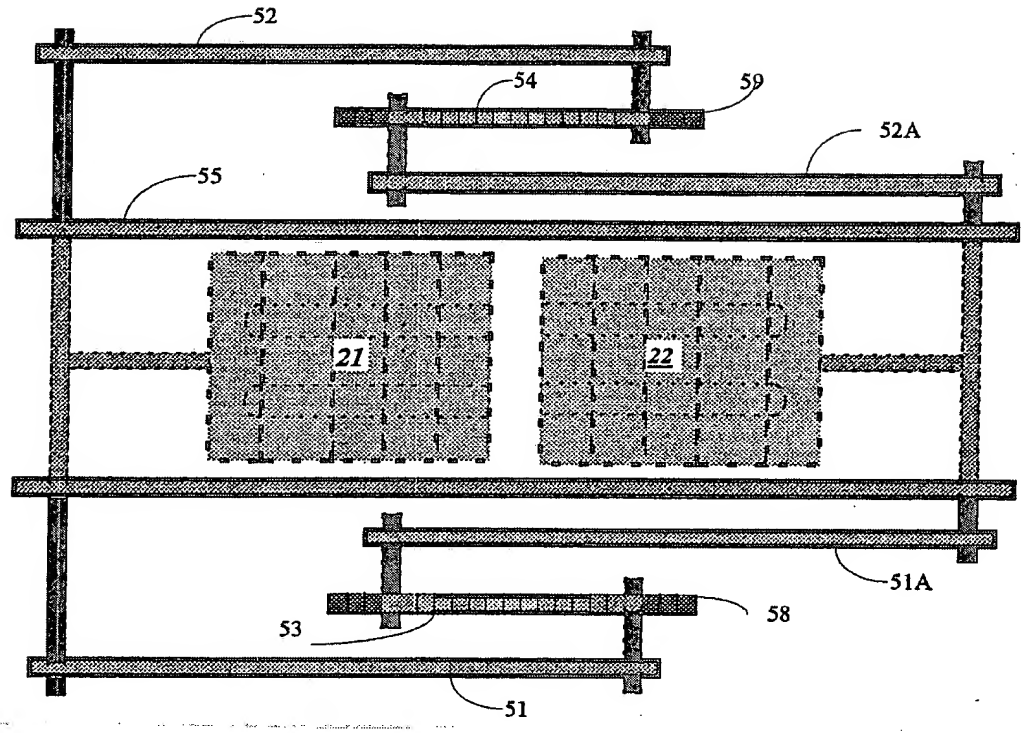
Fig. 8B



b) Structural relationship between rods, connected to cylinders 21 and 22, and rods 51 and 51A (Fig. 6 and 7).

In the application as filed, Fig. 6 is a front elevation of another embodiment of the invention and Fig. 7 is a side elevation of a portion of the apparatus shown in Fig. 6 (Specification, paragraph 18). As shown in Fig. 6, numerals 21 and 22 refer to pistons (Specification, paragraph 93) and do not refer to cylinders as erroneously stated in the September 15 Official Action. As further stated in paragraph 93, the piston 21 is connected to drive shafts 51 and 52; the piston 22, in turn, being connected to the drive shafts 51A and 52A. These structural features are clearly illustrated in Applicant's Fig. 6, reproduced below:

Fig. 6



In the circumstance, it is urged that this objection to the drawing has its basis in the misunderstanding that the numerals 21, 22 in Fig. 6 refer to respective pistons, and do not refer to cylinders. Accordingly, withdrawal of this objection to the drawing is respectfully requested.

c) Structural relationship between rods 72 and 82 (Fig. 8A and 8B) with the rest of the assembly.

Once more, it is urged that the objections to the drawing arise from a misunderstanding of the Specification and Drawing. Thus, the rod is identified in Fig. 8A by the reference numeral 71 (and not, as incorrectly stated in the September 15 Official Action, numeral 72 which identifies the end of the rod 71). In this respect, kindly note the following passage in paragraph 99 of the Specification as filed:

> ...Each end 72, of which only the end 72 is shown in Fig. 8A, of the rod...near the end of the stoke of the rod 71.

The objection to Fig. 8B, moreover, also seems to be based on a further misinterpretation of the Specification. Thus, as established in paragraph 100 of the application as filed, reference numeral 82 identifies not the rod, but a check or one-way valve, e.g.

> ...The closed, far end of the tube has a check or one-way valve 82 (for the compressible fluid) that is closed to prevent actual contact of the end of the rod 71...

Finally, in objecting to the drawing under Manual of Patent Examining Procedure (MPEP) ¶608.02(j) the position is taken that no drawing [sic] or view is suitable for publication in the Official Gazette.

Applicant's counsel, relying on the May 2004 Revision to the MPEP is not able to locate ¶608.02(j). This portion of the Manual publishes ¶608.02(i) (Transfer of Drawings From Prior Applications) followed by the very next paragraph ¶608.02(m) (Drawing Prints). A copy of counsel's relevant MPEP page showing the omission of subparagraphs ¶608.02(j) through ¶608.02(l) is attached to this Second Supplemental Brief.

In a good faith effort to address this objection to the drawing, attention is invited to MPEP ¶1302.09 which states in part pertinent to this matter:

> ...If there is no figure illustrative of or helpful in understanding the claimed invention, no figure need be selected.

Accordingly, because a view suitable for publication in the Official Gazette is not necessary, applicant strongly urges that this objection to the drawing, based on an apparently non-existent MPEP paragraph be withdrawn.

In final comment on the matter of applicant's drawing, the Board is respectfully urged to recall that at the time the instant application was filed (August 23, 2001), filing an application for patent and prosecuting that application to allowance with an informal drawing was a permitted and accepted practice, which practice was adopted in this application.

SPECIFICATION

Objection to the specification is raised under 37 C.F.R. ¶1.71 on the ground that the description of the device shown in Figs. 3, 6, 7, 8A, and 8B is not sufficiently clear because the disclosure is replete with statements that are:

a. Confusing;
b. Not correct; or
c. Contradict laws of physics.

More specifically, the following introductory sentence in paragraph 2 of the application as filed is subject to objection:

> No-one is really certain about the physical principles that enable an electrical conductor, when moved relative to a magnetic field, to produce an electrical current. Similarly the reason why an electrical current, flowing through a conductor, creates a magnetic field also escapes our understanding.

because it is alleged to be "contradictory or speculative." Applicant is puzzled by this objection. The dictionary defines the word "contradiction" as an inconsistent statement (copy of page 316 of "Webster's New World College Dictionary, Fourth Edition ©2000 is attached). Where, in the foregoing quotation is there anything that is inconsistent? The physical phenomena described were subject to experimental verification five hundred years ago!

In a similar manner, the word "speculative" also seems to be inappropriate in that the term relates to something characterized by conjecture or uncertainty (copy of page 1377 of the New World Dictionary attached). Applicant submits that there is nothing uncertain about these interactions between electrical currents and magnetic fields. One is tempted to write that the only speculative features of these phenomena are the various explanations advanced through the past few centuries to explain why they occur!

Accordingly, it is urged that this rejection is so improperly expressed that it is not possible for applicant to address it in greater detail than that which has been stated immediately above.

Further objections are raised in connection with "a concept of generation based on 'excess' energy in a closed system" on page 4, lines 11 to 16 of the Specification. A careful study of this passage in the application as filed fails to disclose any suggestion of "excess" energy generation. As a result, it is not possible at this writing to respond more fully to the objection.[2]

An additional objection is raised to an alleged statement about "transformations between systems" on page 6, paragraph 22. There is no paragraph 22 on page 6.

For completeness' sake, applicant did study paragraph 22 and that paragraph does refer to "transformations between systems". The objectionable feature of this statement is based on an allegation that there are not two moving systems involved in the practice of the invention, but one moving system. Applicant respectfully defers consideration of this rejection to the discussion of claim rejections under the "Claim Rejections 35 U.S.C. ¶101" topic heading.

Finally, the clarity of the "word" "str" on page 6, line 2 of the Specification is subject to objection.

The abbreviation "str" does appear for the first time in the first line of paragraph 20 in the application as filed, quoted below:

> Most scientists use Einstein's special theory of relativity (str)...

Thus, applicant in drafting the application relied on the established convention of identifying an abbreviated phrase by placing the abbreviation in parenthesis immediately after the first time the entire phrase is used. It is respectfully urged that applicant is entitled to believe that the Patent and Trademark Office also understands and accepts this convention.

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[2] Possibly the Office Action in this instance does not refer to the Specification as stated, but refers to page 4, lines 11 to 16 of applicant's Declaration under Rule 132 (copy attached). This portion of the Rule 132 Declaration analyses the data that establishes generation of an increment of energy $2E_{2A}$ that is central to the invention.

CLAIMS REJECTION – 35 U.S.C. ¶112

Independent Claim 1 and Claims 2 through 8, inclusive, that depend directly or indirectly on Claim 1 are rejected under 35 U.S.C. ¶112 on the ground that the "means for converting ...[sic] kinetic energy... into electrical energy" recited in independent Claim 1 renders these claims unpatentable because the Specification fails to provide an enabling disclosure.

Applicant respectfully submits that the technique for converting the kinetic energy into electrical energy has been exhaustively explained above in connection with the objection to the drawing under 37 C.F.R. ¶1.83(a). More specifically, as shown in Fig. 3 of the drawing and as described in paragraph 77 of the Specification, repeated once more below for ease in reference:

> For instance, if the objects 46, 47 are magnetized when they are received in the opening 34 36 with which the ejectors 38, 40 are in alignment, and the reception devices 43, 44 are electrically conductive coils, the magnetic fields of the objects 46, 47 will, when moving past the coils that comprise the reception devices 43, 44, generate electrical pulses in these coils in accordance with the energy transferred.

Applicant respectfully submits that no further description is required to develop the fact that the magnetized objects 46, 47 moving past conductive coils 43, 44 will convert the kinetic energy of the objects into an electrical current within the coils.

CLAIM REJECTIONS – 35 U.S.C. ¶101

This rejection asserts that the claimed invention is not supported through a well established utility on several grounds. Applicant respectfully responds to these grounds of rejection under each of the three topics noted below. Each of these topics, moreover, are individually addressed by applicant in the remarks that follow the enumeration.

Thus, it is urged that the rejection is based on:

a. Malapropisms;
b. Incorrect statements of physical principles; and
c. A mistaken belief that the invention is directed to one and not two moving systems.

a) Malapropisms

Earlier in this Brief with respect to the objection to Fig. 8B of the drawing, applicant was compelled to correct the error in the September 15 Official Action in which the pistons 21, 22 are improperly identified as "cylinders". Once more, on page 7, first full paragraph of the September 15 Official Action this error is repeated:

> ...which is utilized for moving cylinders...

Applicant respectfully submits that this misidentification of described components not only prevents applicant from addressing the specific rejection in a truly satisfactory manner, but also

raises a fair question about the grasp of the claimed subject matter.

A further malapropism, for lack of a better term to describe the situation is advanced on page 7, first full paragraph of the September 15 Official Action. As expressed therein:

> The concept of the claimed system is in the premonition that one can generate energy[3]...

Attached to this Supplemental Appeal Brief is a copy of page 1134 in "Webster's New World College Dictionary", Copyright 2000, which defines "premonition" as:

> ...a warning in advance; a forewarning a feeling that something, especially something bad will happen...

What could possibly be bad or foreboding about generating energy? This use of one word when from the context of the rejection (or objection) it seems that something else was intended has been considered above with respect to the patent misuse of the terms "contradictory or speculative" in connection with one of applicant's background introductory statements. Again, in this instance, it seems clear that something else was intended, but the intent is not clearly conveyed through the terms used.

How, in this circumstance, is it possible for applicant to meet the rejection in a satisfactory manner when the nature of the rejection is not stated with clarity? Alternatively, it appears that the puzzling use of these terms suggests an inadequate understanding of the invention.

Accordingly, applicant respectfully submits that the rejection of Claims 1 through 8 inclusive on the grounds of a "premonition that one can generate energy..." and the energy "...utilized for moving cylinders..." be withdrawn.

b) Incorrect Statements of Relevant Physical Principles

The September 15 Official Action quotes a "Principal [sic] of the Conservation of Energy" from an uncited source as:

> "...The sum total of all the energy within **any given boundary through which energy is not allowed to pass**, remains constant." (September 15, 2004 Official Action emphasis)

Unfortunately, in the absence of a citation that identifies the source for the foregoing statement, applicant is not able to determine if the source for the quotation is authoritative; is subject to some modification; or the like. In any event, the "principle", as stated, has been known to be invalid for a century. Properly stated, the correct principle is one of conservation of mass/energy. A glance at any star shows a stellar mass being converted into radiant and other forms of energy which then spread throughout the universe. Clearly, mass is being converted into energy at a very high rate and energy is converted to mass through, for example, the conversion of a photon, or corpuscle of

[3] As described below, applicant's apparatus does not "generate" energy but converts kinetic energy into electrical energy.

light, into an electron and a positron. Summed up in a simple but profound equation,

$$E = MC^2$$

where:

E = energy
M = mass
C = speed of light.

As a result, applicant advances the fact that at this writing, no one knows if the energy of the universe is increasing, remaining the same or decreasing; the mass of the universe is thought to be doing the opposite of the energy. Thus, in view of our present state of knowledge, it is not possible to place energy impermeable barriers around any system, as proposed in the rejection. Illustrative of the last point, please consider a piece of matter, e.g. wood, contained within a small energy impervious (and obviously imaginary) boundary. The wood experiences changes as its carbon 14 and other elements undergo decay and emit energy at the expense of mass, causing this "closed" system with its energy impermeable boundary to undergo, nevertheless, a change in energy.

But, applicant proposes that all of the rejections arising from theoretical speculations about the invention fail before applicant's experimental data presented in the Rule 132 Declaration that was filed in response to the First Official Action issued in this case. More particularly, attention is invited to page 4 of the Rule 132 Declaration and specifically to the Table of Experimental Results and the first paragraph under "Conclusions", reproduced below:

* * *

Results

The experimental results are shown in Table 1. Due to the lack of precision with these present experimental components, all numbers are rounded to the nearest millimeter, or to the nearest whole number in the case of fractions.

TABLE 1: Experimental Results

Condition	*Spring Length (mm)*		Δx_{CA}	$(\Delta x_{CA})^2$	$E_{CA}=(\Delta x_{CA})^2(k/2)$	E_{CA}/E_{2A}
	Original	Compressed				
C=1 (Cons. Energy)	33	26	7	49	49(k/2)	2
C=2 Cantilevered, One Screw, Immobilized	33	28	5	25	25(k/2)	1
C=3 Cantilevered, Both Screws Moving	33	23	10	100	100(k/2)	4

Conclusions

With respect to condition 1, the laws of conservation of momentum and conservation of energy both pertain. Both conservation of momentum and conservation of energy also pertain in condition 2. For condition 3, the law of conservation of momentum pertains and the law of conservation of energy is believed to pertain, the 'extra' energy ($2E_{2A}$) that appears in condition 3 coming from some source not previously recognized in such cases.

* * *

Consequently, the experimental data adduced in the prosecution of this application irrefutably establish the fact that an increment of energy ($2E_{2A}$) from some previously unrecognized source does appear when the two screws used in the experiment are moving relative to each other and this is the physical principle on which the claimed structure is based.

This Honorable Board is requested to consider as significant the fact that at no time in the prosecution of this application to this writing has applicant's experimental data or experimental methodology been reviewed on the record. Applicant further requests that the Board in passing judgment on the claimed invention consider a basic rule of pleading – those matters that are not denied are accepted as true.

In summary, applicant respectfully urges that the physical principle on which Claims 1 through 8 are rejected is in error and that speculations about energy impermeable barriers are not consonant with our present physical understanding. That applicant's experimental data as set forth in the Rule 132 Declaration proves, moreover, the appearance of some increment of energy hitherto not noticed, dismissed or ignored. This proof establishes the principle on which the claimed invention relies.

c) The Invention is Directed to One and Not Two Moving Systems

By and large the mistaken belief that the invention is directed to one and not two systems has been analyzed in b) immediately above. Apart from the fact that the experimental data in applicant's Rule 132 Declaration refute that theory, to appreciate the advance that characterizes the claimed invention in more graphic terms, below is a quotation from a letter sent to undersigned counsel by the applicant in response to a request for applicant's comments on the September 15 Official action:

> ...When a fighter pilot shoots at an oncoming enemy aircraft, the enemy pilot sees the bullets impact with much greater energy than they were expelled from the fighter pilot's guns; the speed of the impact is the sum of the two planes' speed plus the speed with which the bullets leave the guns; the energy of impact is one-half the mass of each bullet times the square of the total speed as seen by the enemy pilot. Anyone who has ever been in the position of being the enemy pilot will attest that the impact of head-on bullets causes their aircraft to shudder and slow noticeably.

SUMMARY

The objections to the drawing under 37 C.F.R.¶1.83(a) should be withdrawn because each of the objectionable features (except for the minor failure to show the described reference numeral 73) are either illustrated, explained in the Specification as filed or based on error (e.g. referring to the pistons 21 and 22 as "cylinders").

The position taken with respect to "MPEP ¶608.02(j)" that there is no view present suitable for publication in the "Official Gazette" is in error in that the rejection relies on a non-existent "MPEP ¶608.02(j)" and, as stated in MPEP ¶1302.09, if there is no figure illustrative of the invention, no figure need be selected. Consequently, this objection also should be withdrawn.

Objections to the specification, based to a disturbing extent on misquotations from the Specification (e.g. page 4, lines 11 through 16 describing "excess" energy in a closed system, wherein no such statement at all appears in that portion of the Specification) should be withdrawn.

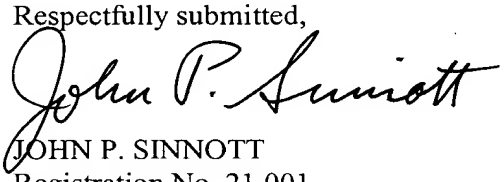
The objection to the lack of clarity in the abbreviation "str" also should be withdrawn because that abbreviation is defined in the first sentence to paragraph 20 of the Specification.

The rejection of Claims 1 through 8, inclusive under 135 U.S.C. ¶112 is respectfully traversed. The objection that the generation of an electrical current in the electrically conductive coils 43, 44 through the movement of the magnetic fields that characterize the objects 46, 47 fails to adequately describe the means for converting the kinetic energy into electrical energy recited in Claims 1 through 8, inclusive requires no further comment from applicant and should be withdrawn.

Applicant also advances the view that the various theoretical objections to Claims 1 through 8, inclusive, under 35 U.S.C. ¶101, for example, the one system/two systems analysis and the considerations that arose through an incorrect statement of mass/energy conservation law all fail before the experimental data proving the appearance of an energy increment that before applicant's discovery was not noticed, was dismissed, or was disregarded.

Accordingly, early allowance of Claims 1 through 8 now standing in the case is earnestly solicited.

Respectfully submitted,



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Manual of PATENT EXAMINING PROCEDURE

Original Eighth Edition, August 2001
Latest Revision May 2004

U.S. DEPARTMENT OF COMMERCE
United States Patent and Trademark Office

Rev. 2, May 2004

cal support staff will routinely enter all **>replacement sheets in the contents of the application. For IFW processing, see IFW Manual.< If the examiner decides that the sheets should not be entered, the examiner should provide the applicant with the complete, explicit reasoning for the denial of entry. The entries made by the technical support staff will be marked "(N.E.)."

Form paragraph 6.37 may be used to acknowledge **>replacement drawing sheets.

¶ *6.37 Acknowledgment of Replacement Drawing Sheets*

The drawings were received on [1]. These drawings are [2].

Examiner Note:

1. In bracket 2, insert either --acceptable-- or --not acceptable--.
2. If not acceptable because of noncompliance with 37 CFR 1.121(d), an explanation must be provided.
3. If not acceptable because of informalities noted on PTO-948, use form paragraph 6.43.

<

Alternatively, PTOL-326 Office Action Summary includes a block for acknowledgment of **>replacement< drawings.

**

For return of drawing, see MPEP § 608.02(y).

608.02(i) Transfer of Drawings From Prior Applications

Transfer of drawings from a first pending application to another will be made only upon the granting of a petition filed under 37 CFR 1.182 which must set forth a hardship situation requiring such transfer of drawings.

608.02(m) Drawing Prints [R-2]

Preparation and distribution of drawing prints is discussed in MPEP § 508.

Prints are made of *>acceptable< drawings of an * application >maintained in paper<. These prints are kept on top of the papers on the right side of the file wrapper under any bibliographic data sheet. See MPEP § 719.01(b). >No drawing prints are made for an image file wrapper (IFW) application.<

** The original drawing, of course, should not be marked up by the examiner. Where, as in an electrical wiring application, it is desirable to identify the various circuits by different colors, or in any more or less complex application, it is advantageous to apply legends, arrows, or other indicia, **>the drawing prints may be used and retained unofficially in the file since the drawing prints are no longer needed for a record of the drawings as originally filed. If the application is maintained in paper, the drawing prints, as colored by the examiner, may be retained in the paper application file. If the application is an IFW application, the drawing prints may be retained by the examiner<.

Prints remain in the >paper application< file at all times except as provided in MPEP § 608.02(c).

INTERFERENCE PRINTS

*>An interference< print is prepared of each drawing in all applications having a filing date. ** The classification of the application should be placed on the interference print. All interference prints are then placed in the interference cabinets.

If an application has several sheets of drawings, the interference prints should be stapled together at their top edges before being filed. If the number of sheets of prints is too large to be stapled, a fastener should be placed through the holes at the top.

The time when the interference prints are removed from the *>interference< cabinets is determined by the Technology Center Director.

The drawings filed by applicant remain in the >paper< file wrapper.

608.02(n) Duplicate Prints in Patentability Report Applications

In patentability report cases having drawings, the examiner to whom the application is assigned should normally obtain a duplicate set of the interference prints of the drawing for filing in the Technology Center (TC) to which the application is referred.

When an application that has had patentability report prosecution is passed for issue or becomes abandoned, notification of this fact is given by the TC having jurisdiction of the case to each TC that submitted a patentability report. The examiner of each such reporting TC notes the date of allowance or abandonment on his or her duplicate set of prints. At such time as these prints become of no value to the reporting TC, they may be destroyed.

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continuous wave *Electronics* an electromagnetic wave, esp. a radio wave, with a constant amplitude and frequency

con·tinuum (kən tin'yōō əm) *n., pl.* **-ua** (-yōō ə) or **-u·ums** [L, neut. of *continuus*] **1** a continuous whole, quantity, or series; thing whose parts cannot be separated or separately discerned **2** *Math.* the set of all real numbers See also SPACE-TIME (*n.* 1)

conto (kän'tō) *n., pl.* **--tos** [Port, lit., account, count < L *computus*: see COUNT[1]] a money of account of Portugal and Cape Verde, equal to 1,000 escudos

con·tort (kən tôrt') *vt., vi.* [< L *contortus*, pp. of *contorquere*, to whirl, twist < *com-*, together + *torquere*, to twist: see TORT] to twist or wrench out of its usual form into one that is grotesque; distort violently *[*a face *contorted* with pain*]* —*SYN.* DEFORM

con·tor·tion (kən tôr'shən) *n.* [ME *contorsioun*] **1** a contorting or being contorted, esp. of the face or body **2** a contorted condition or position —**con·tor'tive** *adj.*

con·tor·tion·ist (-ist) *n.* a person, as a circus acrobat, who can contort his or her body into unnatural positions

con·tour (kän'tōōr') *n.* [Fr < It *contorno* < LL *contornare*, to go around < L *com-*, intens. + *tornare*, to turn in a lathe: see TURN] **1** the outline of a figure, mass, land, etc. **2** the representation of such an outline —*vt.* **1** to make a contour or outline of **2** to mark contour lines on **3** to shape or mold to conform to the contour of something *[*a chair *contoured* to fit the body*]* **4** to construct (a road, etc.) in accordance with natural contours —*adj.* **1** made so as to conform to the shape or outline of something *[contour* sheets for a bed*]* **2** characterized by the making of furrows along the natural contour lines so as to avoid erosion, as on a hillside *[contour* farming*]* —*SYN.* OUTLINE

contour feathers feathers that form the surface plumage of a bird and determine the outer contour, including the wing and tail feathers

contour interval the difference in value between adjacent contour lines on a map or chart

contour line a line on a map or chart connecting all points of the same elevation (or depth) in a particular area

contour map a map showing contour lines

contr *abbrev.* **1** contract **2** contraction **3** contralto **4** contrary **5** control **6** controller

con·tra[1] (kän'trə) *prep.* [L] against

con·tra[2] (kän'trə, kōn'-) *n.* [AmSp, short for *contrarrevolucionario*, a counterrevolutionary] a member of any of the groups which sought to overthrow the Sandinista government in Nicaragua

contra- (kän'trə) [< L *contra*, against < OL **com-tro-* (< *com-*, COM- + **-tero-*, compar. suffix); designating assoc. of two (opposites)] *prefix* **1** against, opposite, opposed to, contrary *[contradict, contraceptive]* **2** lower in musical pitch or register *[contrabassoon]*

con·tra·band (kän'trə band') *n.* [Sp *contrabanda*, a smuggling < It *contrabando* < *contra-*, against + *bando* < ML *bannum* < Frank **ban*, a command; akin to OE *ban*: see BAN[1]] **1** unlawful or prohibited trade **2** goods forbidden by law to be imported or exported; smuggled merchandise **3** CONTRABAND OF WAR ☆**4** during the Civil War, a black slave who fled to, or was smuggled or found behind, the Union lines —*adj.* forbidden by law to be imported or exported

con·tra·band·ist (-ist) *n.* a person who trades in contraband goods; smuggler

contraband of war war materiel, as ammunition or weapons, which, by international law, may rightfully be intercepted and seized by either belligerent when shipped to the other one by a neutral country

contra·bass (kän'trə bās') *adj.* [see CONTRA- & BASS[1]] pitched an octave lower than the normal bass —*n.* DOUBLE BASS —**con'tra·bass'·ist** *n.*

contra·bassoon (kän'trə bə sōōn') *n.* the double bassoon, larger than the bassoon and an octave lower in pitch

con·tra·cep·tion (kän'trə sep'shən) *n.* [CONTRA- + (CON)CEPTION] the intentional prevention of fertilization of an ovum, as by special devices, drugs, etc.

con·tra·cep·tive (kän'trə sep'tiv) *adj.* of or used for contraception —*n.* any contraceptive device or agent

con·tract (kän'trakt' *for n. & usually for vt. 1 & vi. 1*; kən trakt' *for v. generally*) *n.* [OFr < L *contractus*, pp. of *contrahere*, to draw together, make a bargain < *com-*, together + *trahere*, to DRAW] **1** an agreement between two or more people to do something, esp. one formally set forth in writing and enforceable by law; compact; covenant **2** a formal agreement of marriage or betrothal **3** a document containing the terms of a contract **4** the branch of law having to do with contracts ☆**5** [Informal] an assignment to murder someone for pay **6** *Bridge a)* the highest bid in an auction *b)* the number of tricks, and the suit or no-trump preference, stated in such a bid *c)* CONTRACT BRIDGE —*vt.* **1** *a)* to enter upon, or undertake, by contract *b)* to hire (a person, business, etc.) to perform under contract *[*we *contracted* him to fix the roof*]* **2** to get, acquire, or incur *[*to *contract* a disease, a debt, etc.*]* **3** *a)* to reduce in size; draw together; narrow; shrink; shorten *[*cold *contracts* metals*] b)* to draw (the brow or brows) together; knit **4** to narrow in scope; restrict **5** [Rare] to betroth **6** *Gram.* to shorten (a word or phrase) by the omission of a letter or sound, as in *I'm, e'er, can't* —*vi.* **1** to make a contract; agree formally *[*to *contract* for a new car*]* **2** to become reduced in size or bulk; draw together; shrink; narrow; shorten —**contract out** **1** to assign (a job) by contract; specif., to subcontract **2** [Chiefly Brit.] to withdraw from a contract or agreement —**con·tract'·i·bil'·i·ty** *n.* —**con·tract'·i·ble** *adj.*

SYN.—*contract* implies a drawing together of surface or parts and a resultant decrease in size, bulk, or extent; to shrink, contract so as to be short of the normal or required size, amount, extent, etc. (those shirts have *shrunk*); *condense* suggests reduction of something into a more compact or moreable form without loss of essential content; *compress* is to press or squeeze into a more compact order; to compress a lifetime's work *compressed* into one volume; *deflate* implies reduction in size or bulk by the removal of air, gas, or extended use, anything insubstantial (to *deflate* a balloon, an ego, etc.); —*ANT.* expand, inflate

con·tract bridge (kän'trakt') a form of bridge, developed from auction bridge, in which only the number of tricks named in a contract may be counted toward a game, additional tricks being counted as a bonus score

con·trac·tile (kən trak'til) *adj.* **1** having the power of contracting **2** producing contraction —**con·trac·til·i·ty** (kän'trak til'ə tē) *n.*

con·trac·tion (kən trak'shən) *n.* [ME *contraccioun* < OFr *contraction* < L *contractio*] **1** a contracting or being contracted **2** the shortening and thickening of a muscle fiber or a muscle in action, esp. of the uterus during labor **3** *Gram. a)* the shortening of a word or phrase by the omission of one or more sounds or letters *b)* a word form resulting from this (Ex.: *she's* for *she is, aren't* for *are not*) **4** *Econ.* a period of decrease in business activity —**con·trac'tion·al** *adj.*

con·trac·tive (kən trak'tiv) *adj.* [ML *contractivus*] **1** having the power of contracting **2** producing or tending to produce contraction **3** of contraction

con·trac·tor (kän'trak'tər; *also, and for 3 usually*, kən trak'tər) *n.* **1** one of the parties to a contract **2** a person who contracts to supply certain materials or do certain work for a stipulated sum, esp. one who does so in any of the building trades **3** a thing that contracts, narrows, or shortens; esp., a muscle that contracts

con·trac·tual (kən trak'chōō əl) *adj.* of, or having the nature of, a contract —**con·trac'·tu·al·ly** *adv.*

con·trac·ture (kən trak'chər) *n.* a condition of abnormal shortening or shrinkage of a muscle, tendon, etc., often with persistent flexion or distortion at a joint

contra·dance (kän'trə dans') *n.* CONTREDANSE

con·tra·dict (kän'trə dikt') *vt.* [< L *contradictus*, pp. of *contradicere* < *contra-*, CONTRA- + *dicere*, to speak: see DICTION] **1** to assert the opposite of (what someone else has said) *b)* to deny the statement of (a person) **2** to declare (a statement, report, etc.) to be false or incorrect **3** to be contrary or opposed to; go against *[*the facts *contradict* his theory*]* —*vi.* to speak in denial; oppose verbally —*SYN.* DENY —**con'·tra·dict'·able** *adj.* —**con'·tra·dic'·tor** or **con'·tra·dict'er**

con·tra·dic·tion (kän'trə dik'shən) *n.* [ME *contradiccioun* < OFr *contradiction* < L *contradictio*] **1** a contradicting or being contradicted **2** a statement in opposition to another; denial **3** a condition in which things tend to be contrary to each other; inconsistency; discrepancy **4** a person, thing, or statement having contradictory elements or qualities

con·tra·dic·tious (-dik'shəs) *adj.* **1** inclined to contradict; contentious **2** [Archaic] CONTRADICTORY (sense 1)

con·tra·dic·tory (kän'trə dik'tə rē) *adj.* [ME *contradictorie* < L *contradictorius*] **1** involving a contradiction; inconsistent; also **con'·tra·dic'·tive** **2** inclined to contradict or deny —*n., pl.* **--ries** something that contradicts; an opposite **2** *Logic* either of two propositions so related that only one can be true and, likewise, only one can be false: see CONTRARY (*n.* 2) —**con'·tra·dic'·to·ri·ly** (-rə lē) *adv.* —**con'·tra·dic'·to·ri·ness** (-rē nis) *n.*

contra·dis·tinc·tion (kän'trə dis tiŋk'shən) *n.* distinction by contrast *[*tolerance in *contradistinction* to love*]* —**con'tra·dis·tinc'·tive** (-tiv) *adj.* —**con'tra·dis·tinc'·tively** *adv.*

contra·dis·tin·guish (-dis tiŋ'gwish') *vt.* to distinguish (one thing from another) by contrasting

☆**con·trail** (kän'trāl') *n.* [CON(DENSATION) + TRAIL] a white trail of condensed water vapor that sometimes forms in the wake of an aircraft; vapor trail

contra·indi·cate (kän'trə in'di kāt') *vt.* **--cat'ed, --cat'·ing** *Med.* to make (the indicated, or expected, treatment or drug) inadvisable —**con'tra·in'·di·ca'·tion** *n.* —**con'tra·indic'·a·tive** (-in dik'ə tiv) *adj.*

con·tralto (kən tral'tō) *n., pl.* **--tos** or **-ti** (-tē) [It: see CONTRA- & ALTO] **1** the range of a low female voice between mezzo-soprano and tenor, usually from about the first F below middle C to the second F above; alto **2** *a)* a voice or singer with such a range *b)* a part for such a voice —*adj.* of, for, or having the range of a contralto

contra·po·si·tion (kän'trə pə zish'ən) *n.* a placing opposite or over against; antithesis; contrast

contra·posi·tive (-päz'ə tiv) *n. Logic* a proposition obtained by negating and transposing the terms of a given proposition [the *contrapositive* of "All A is B" is "All not-B is not-A"]

con·trap·tion (kən trap'shən) *n.* [< ? CON(TRIVE) + TRAP[1], *n.* + -TION] a device or machine regarded as strange, incomprehensible, makeshift, etc.; contrivance or gadget

con·tra·pun·tal (kän'trə punt'l) *adj.* [It *contrappunto* (see COUNTERPOINT + -AL] **1** of or characterized by counterpoint **2** according to the principles of counterpoint —**con'·tra·pun'·tal·ly** *adv.*

con·tra·pun·tist (-punt'ist) *n.* an expert in the principles and use of counterpoint

con·trar·i·an (kän trer'ē ən) *n.* a person who typically acts or thinks in a way contrary to popular or accepted opinion; specif.

—**without prejudice** 1 without detriment or injury 2 *Law* without dismissal of or detriment to (a legal right, claim, etc.): often with *to*

SYN.—**prejudice** implies a preconceived and unreasonable judgment or opinion, usually an unfavorable one marked by suspicion, fear, or hatred [a murder motivated by race *prejudice*]; **bias** implies a mental leaning in favor of or against someone or something [few of us are without *bias* of any kind]; **partiality** implies a fondness for or attachment to (the conductor's *partiality* for the works of Brahms]; **predilection** implies a preconceived liking formed as a result of one's background, temperament, etc. [that inclines one to a particular preference; he has a *predilection* for murder mysteries]

preju·di·cial (prej'ə dish'əl, prej'o͞o-) *adj.* causing prejudice, or harm; injurious; detrimental —**prej'u·di'·cially** *adv.*

prela·cy (prel'ə sē) *n., pl.* **--cies** [ME *prelacie* < ML(Ec) *praelatia*] **1** *a)* the office or rank of a prelate *b)* prelates collectively: also **prel'a·ture'** (-chər, -chər) **2** church government by prelates: often a hostile term: also **prel'a·tism'** (-tiz'əm)

pre·lap·sar·ian (prē'lap ser'ē ən) *adj.* **1** of the time before the Fall of Man **2** old-fashioned

prel·ate (prel'it) *n.* [ME *prelat* < OFr < LL(Ec) *praelatus*, prelate, orig., ruler < pp. of L *praeferre*, to place before, PREFER] a high-ranking ecclesiastic, as a bishop —**prel'·ate·ship'** *n.* —**pre·latic** (prē lat'ik, pri-) *adj.*

pre·lect (prē lekt') *vi.* [< L *praelectus*, pp. of *praelegere*, to read before, lecture: see PRE- & LECTURE] to lecture in public —**pre·lec'·tion** *n.* —**pre·lec'·tor** *n.*

pre·li·ba·tion (prē'lī bā'shən) *n.* [LL *praelibatio* < L *praelibare* < *prae-*, PRE- + *libare*, to taste] [Rare] a tasting beforehand; foretaste

pre·lim (prē lim', pri-; prē'lim') [Slang] *n. short for* PRELIMINARY

prelim *abbrev.* preliminary

pre·limi·nary (prē lim'ə ner'ē, pri-) *adj.* [< Fr *préliminaire* or ModL *praeliminaris* < L *prae-* (see PRE-) + L *liminaris*, of a threshold < *limen*, threshold (see LIMEN)] coming before or leading up to the main action, discussion, business, etc.; introductory; prefatory; preparatory —*n., pl.* **--nar'·ies** [Fr *préliminaires*, pl.] *often pl.*] **1** a preliminary step, procedure, etc. **2** *a)* a preliminary examination *b)* a contest or match before the main one —**pre·lim'·i·nar'·i·ly** *adv.*

pre·lit·er·ate (prē'lit'ər it) *adj.* [PRE- + LITERATE] of or belonging to a society not having a writing system for its language; nonliterate

Pre·log (pre'lôg'), **Vladimir** 1906-98; Swiss chemist, born in Yugoslavia

prel·ude (prel'yo͞od'; prā'lo͞od', prē'-) *n.* [Fr *prélude* < ML *praeludium* < L *praeludere*, to play beforehand < *prae-*, PRE- + *ludere*, to play < *ludus*: see LUDICROUS] **1** anything serving as the introduction to a principal event, action, performance, etc.; preliminary part; preface; opening **2** *Music a)* an introductory instrumental composition, such as the first movement of a suite or the overture to an opera *b)* since the 19th cent., any short, romantic composition —*vt., vi.* **--ud'·ed, --ud'·ing** [L *praeludere*] **1** to serve as or be a prelude (to) **2** to introduce by or play (as) a prelude —**pre·lu·dial** (prē lo͞o'dē əl) *adj.*

pre·lu·sion (prē lo͞o'zhən) *n.* [L *praelusio* < *praelusus*, pp. of *praeludere:* see prec.] *rare var. of* PRELUDE (sense 1) —**pre·lu'·sive** (-lo͞o'siv) *adj.* or **pre·lu'·sory** (-lo͞o'sə rē) —**pre·lu'·sively** *adv.*

prem *abbrev.* premium

pre·mari·tal (prē mar'ət'l) *adj.* occurring before marriage

pre·ma·ture (prē'mə to͝or', -cho͝or', -tyo͝or'; *Brit* prem'ə-) *adj.* [L *praematurus:* see PRE- & MATURE] happening, done, arriving, or existing before the proper or usual time; too early; specif., born before the full term of gestation —**pre'·ma·ture'·ly** *adv.* —**pre'·ma·tu'·rity** *n.* or **pre'·ma·ture'·ness**

pre·max·illa (prē'mak sil'ə) *n., pl.* **--lae** (-ē) [ModL: PRE- & MAXILLA] either of two bones in the upper jaw of vertebrates, situated between and in front of the maxillae, and fusing with them in the adult human being —**pre·max'·il·lary** (-maks'i ler'ē) *adj.*

⋆**pre-med** or **pre·med** (prē'med') *adj. short for* PREMEDICAL —*n.* a premedical student or program of studies

pre·medi·cal (prē med'i kəl) *adj.* designating or of the studies preparatory to the study of medicine

pre·medi·tate (prē med'ə tāt') *vt.* **--tat'·ed, --tat'·ing** [< L *praemeditatus*, pp. of *praemeditari:* see PRE- & MEDITATE] to think out, plan, or scheme beforehand *[a premeditated* murder*]* —*vi.* to think or meditate beforehand —**pre·med'i·tat'·edly** *adv.* —**pre·med'i·ta'·tive** *adj.* —**pre·med'i·ta'·tor** *n.*

pre·medi·ta·tion (prē med'ə tā'shən) *n.* **1** the act of premeditating **2** *Law* a degree of planning and forethought sufficient to show intent to commit an act

pre·men·strual (prē men'strəl) *adj.* occurring before menstruation or a menstrual period

premenstrual syndrome a group of physical and emotional symptoms that may precede a menstrual period, as fluid retention, fatigue, depression, irritability, etc.

pre·mier (pri mir', -myir'; *Brit* prem'yər) *adj.* [ME *primier* < MFr *premier* < L *primarius* < *primus*, first, PRIME] **1** first in importance or rank; chief; foremost **2** first in time; earliest —*n.* **1** any chief official **2** *the title of a)* the prime minister of any of certain countries *b)* the chief executive officer of a Canadian province, *c)* the chief minister of an Australian State —**pre·mier'·ship** *n.*

premier danseur a principal male dancer in a ballet or ballet company

pre·mière or **pre·miere** (pri mir', -myer', -myir'; *Fr* [Fr, fem. of *premier:* see PREMIER] **1** a first performance of a play, film, etc. **2** *TV* the first broadcast of a film, etc. —*adj.* **1** being the first or leading woman performer in a ballet company *[première* danseuse*]* **2** PREMIER —*vt.* **--miered', --mier'·ing** or **--mier'·ing** to exhibit (a play, film, etc.) for the first time —*vi.* to be exhibited for the first time

première danseuse a principal female dancer in a ballet company

pre·mil·len·nial (prē'mi len'ē əl) *adj.* of or happening in the period before the millennium —**pre'·mil·len'·ni·ally** *adv.*

pre·mil·len·ni·al·ism (-iz'əm) *n.* the religious doctrine that the second coming of Christ will occur before the millennium —**pre'·mil·le·nar'i·an·ism'** (-mil'ə ner'ē ən iz'əm) —**pre'·mil·len'·ni·al** *adj., n.* —**pre'·mil·len'·ni·al·ist** *n.*

prem·ise (prem'is; *for v., chiefly Brit* pri mīz') *n.* [ME < ML *praemissa* < L *praemissus*, pp. of *praemittere*, to send before < *prae-*, before + *mittere*, to send: see PRE- & MISSION] **1** *a)* previous statement or assertion that serves as the basis for an argument *b) Logic* either of the two propositions of a syllogism from which the conclusion is drawn (see SYLLOGISM): also, in Brit.] **prem'·iss** **2** [*pl.*] *a)* the part of a deed or lease that states the parties involved, the property in conveyance, and other pertinent facts *b)* the property so mentioned **3** [*pl.*] a piece of real estate; house or building and its land *[keep off the premises]* —**--is·ing** **1** to state as a premise **2** to introduce or preface (a course, etc.) —*vi.* to make a premise —*SYN.* PRESUME

pre·mium (prē'mē əm) *n., pl.* **--ums** [L *praemium*, reward, recompense < *prae-*, before + *emere*, to take: see PRE- & REDEEM] **1** reward or prize, esp. one offered free or at a special low price as an added inducement to buy or do something; bonus **2** an additional amount paid or charged; specif., *a)* an amount paid for a bond in addition to interest *b)* an amount paid, as for stock, above the nominal or par value *c)* additional wages paid as for overtime or dangerous work **3** a payment; specif., *a)* the amount periodically paid, in one sum or periodically, for an insurance policy *b)* [Rare] a fee paid for instruction in a trade, etc. *c)* a fee paid by a borrower of stock to the lender, as in short selling **4** worth or value *[*to put a *premium* on punctuality*]* **5** *Econ.* the amount by which one form of money exceeds another (of the same nominal value) in exchange value, or buying power —*adj.* rated as high in quality and sold at a higher price —*SYN.* BONUS, REWARD

premium **1** at a value or price higher than normal **2** very desirable, usually because of scarcity

pre·mo·lar (prē mō'lər) *adj.* designating or of any of the eight teeth situated in front of the molars —*n.* a premolar tooth

pre·mon·ish (prē män'ish) *vt., vi.* [PRE- + MONISH] to advise or warn in advance

premo·ni·tion (prem'ə nish'ən, prē'mə-) *n.* [MFr *premonition* < LL(Ec) *praemonitio* < L *praemonere* < *prae-*, before + *monere*, warn: see PRE- & MONITOR] **1** a warning in advance; a foreshadowing **2** a feeling that something, esp. something bad, will happen; foreboding; presentiment —**pre·moni·tory** (prē män'i tôr'ē) *adj.*

pre·morse (prē môrs') *adj.* [L *praemorsus*, pp. of *praemordere*, bite off, orig. to bite in front or at the end < *prae-*, before + *mordere*, to bite: see PRE- & MORDANT] ending abruptly and unevenly as if bitten off: said of a leaf or root

pre·mu·ni·tion (prē'myo͞o nish'ən) *n.* a type of immunity given by a small number of persistent, latent pathogens in the body

pre·name (prē'nām') *n.* a given name; forename

pre·na·tal (prē nāt'l) *adj.* [PRE- + NATAL] before birth or during pregnancy *[prenatal* health care*]* —**pre·na'·tally** *adv.*

Pren·der·gast (pren'dər gast'), **Maurice** (Brazil) 1859-1924; painter, born in Canada

pre·nomi·nate (prē nām'ə nāt'; *for adj.*, -nit) *vt.* **--nat'·ed, --nat'·ing** [PRE- + NOMINATE, based on L *praenominare*] [Obs.] to mention, beforehand —*adj.* [Obs.] previously mentioned

pre·no·tion (prē nō'shən) *n.* [L *praenotio* (see PRE- & NOTION), transl. of Gr *prolēpsis*, PROLEPSIS] [Now Rare] **1** foreknowledge **2** a preconceived notion

pren·tice or **'pren·tice** (pren'tis) *n.* [ME *prentis*, aphetic for *aprentis*, APPRENTICE] *archaic var. of* APPRENTICE

pre·nup·tial (prē nup'shəl, -chəl) *adj.* [PRE- + NUPTIAL] before marriage or wedding **2** *Zool.* before mating

pre·oc·cu·pancy (prē äk'yo͝o pən sē, -yə-) *n., pl.* **--cies** **1** occupancy **2** PREOCCUPATION

pre·oc·cu·pa·tion (prē äk'yo͝o pā'shən, -yə-) *n.* [L *praeoccupatio*] **1** a preoccupying or being preoccupied, esp. mentally **2** something, as an idea, which preoccupies one

pre·oc·cu·pied (prē äk'yo͝o pīd', -yə-) *adj.* **1** previously occupied **2** wholly occupied with or absorbed in one's thoughts; engrossed **3** *Biol.* designating or of a taxonomic name already used and hence no longer available —*SYN.* ABSENT-MINDED

pre·oc·cupy (prē äk'yo͝o pī', -yə-) *vt.* **--pied', --py·ing** [ME *occupyen* < L *praeoccupare:* see PRE- & OCCUPY] **1** to fill the thoughts of to the virtual exclusion of other matters; absorb **2** to occupy or take possession of before someone else beforehand

pre·op·era·tive (prē äp'ər ə tiv, -ər āt'iv) *adj.* of or occurring in the period before a surgical operation —**pre·op'·era·tively** *adv.*

pre·ordain (prē'ôr dān') *vt.* [LL *praeordinare:* see PRE- & ORDAIN] to ordain or decree beforehand; foreordain —**pre'·ordi·na'·tion** (-ôrd''n ā'shən) *n.*

pre-owned (prē ōnd') *adj.* previously owned; secondhand

prep[1] (prep) *adj.* ⋆*short for* PREPARATORY [*a prep* school] —*n.* **prepped, prep'·ping** [Informal] **1** to attend a preparatory

...ape, use, etc. —**make a spectacle of oneself** to behave foolishly or improperly in public

spec·ta·cled (-kəld) *adj.* 1 wearing spectacles 2 having markings that resemble spectacles

spec·tac·u·lar (spek tak'yə lər) *adj.* [< L *spectaculum* (see SPECTACLE) + -AR] 1 of or like a spectacle, or show 2 unusual to a striking degree; characterized by a great display, as of daring —*n.* an elaborate show or display —**spec·tac'u·larly** *adv.*

spec·tate (spek'tāt') *vi.* **--tat'ed, --tat'ing** to be a spectator at some event, esp. an athletic contest

spec·ta·tor (spek'tāt'ər, spek tāt'-) *n.* [L < pp. of *spectare,* to behold: see SPECTACLE] 1 a person who sees or watches something without taking an active part; onlooker 2 a woman's shoe having two contrasting colors and with the toe and heel characteristically ornamented with perforations —**spec'ta·tor·ship'** *n.*

spec·ta·to·rial (spek'tə tôr'ē əl) *adj.* of, or being that of, a spectator or onlooker *[their purely spectatorial* role in the conflict*]*

spec·ter (spek'tər) *n.* [Fr *spectre* < L *spectrum,* an appearance, apparition < *spectare,* to behold: see SPECTACLE] 1 a ghost; apparition 2 any object of fear or dread Brit. sp. **spec'tre**

spec·ti·no·my·cin (spek'tə nō mī'sin) *n.* an antibiotic, $C_{14}H_{24}N_2O_7$, made synthetically or obtained from an actinomycete (*Streptomyces spectabilis*) and used esp. in treating cases of gonorrhea that are resistant to penicillin

spec·tra (spek'trə) *n. alt. pl. of* SPECTRUM

spec·tral (-trəl) *adj.* [< SPECTER + -AL] 1 of, having the nature of, or like a specter; phantom; ghostly 2 of or caused by a spectrum or spectra —**spec·tral'·ity** (-tral'ə tē) *n.* or **spec'·tral·ness** —**spec'·trally** *adv.*

spectral line any of a number of lines in a spectrum produced by the emission of electromagnetic radiation from an excited atom: a spectral line represents the energy difference between two energy levels

spec·tro- (spek'trō, -trə) [< SPECTRUM] *combining form* 1 of radiant energy as exhibited in a spectrum *[spectrogram]* 2 of or by a spectroscope *[spectroheliogram]*

spec·tro·chem·is·try (spek'trō kem'is trē) *n.* the branch of chemistry dealing with the analysis of the spectra of substances —**spec'tro·chem'i·cal** *adj.*

spec·tro·gram (spek'trə gram') *n.* a photograph or other visual representation of a spectrum

spec·tro·graph (-graf', -gräf') *n.* any of various instruments that record various types of spectra, esp. one that uses a camera to record a spectrum of light —**spec'tro·graph'ic** *adj.* —**spec'tro·graph'i·cally** *adv.*

spec·tro·he·lio·gram (spek'trə hē'lē ə gram') *n.* a monochromatic image of the sun's chromosphere produced by a spectroheliograph

spec·tro·he·lio·graph (-graf', -gräf') *n.* an instrument acting like a filter, for photographing the sun using light from only one spectral line, usually from hydrogen (red) or calcium (violet)

spec·tro·he·lio·scope (-skōp') *n.* a spectroheliograph adapted for visual use

spec·trom·eter (spek träm'ət ər) *n.* [Ger *spektrometer:* see SPECTRO- & -METER] an instrument used for measuring spectral wavelengths —**spec'·tro·met'·ric** (-trō me'trik) *adj.* —**spec·trom'·etry** (-ə trē) *n.*

spec·tro·pho·tom·eter (spek'trə fō täm'ət ər) *n.* an instrument used for measuring the transmission or reflection of light by comparing various wavelengths of the light —**spec'tro·pho'·to·met'·ric** (-fōt'ə me'trik) *adj.* —**spec'tro·pho·tom'·etry** *n.*

spec·tro·scope (spek'trə skōp') *n.* [Ger *spektroskop:* see SPECTRO- & -SCOPE] an optical instrument used for forming spectra for study —**spec'tro·scop'ic** (-skäp'ik) *adj.* —**spec'tro·scop'i·cally** *adv.*

spec·tros·copy (spek träs'kə pē) *n.* the study of spectra by use of the spectroscope —**spec·tros'·co·pist** (-pist) *n.*

spec·trum (spek'trəm) *n., pl.* **--tra** (-trə) or **--trums** [ModL, special use (by NEWTON[2], 1671) of L *spectrum:* see SPECTER] 1 the series of colored bands dispersed and arranged in the order of their respective wavelengths by the passage of white light through a prism or other dispersing device and shading continuously from red (produced by the longest wave visible) through violet (produced by the shortest): the six main colors of the spectrum are red, orange, yellow, green, blue, and violet, with a seventh color (indigo) sometimes specified, between blue and violet 2 the intensity of any radiation or motion displayed as a function of frequency, or wavelength 3 an afterimage 4 a continuous range or entire extent *[a wide spectrum* of opinion*]* 5 *a)* RADIO SPECTRUM *b)* ELECTROMAGNETIC SPECTRUM

spectrum analysis analysis of substances or bodies through study of their spectra

spec·u·lar (spek'yə lər) *adj.* [L *specularis*] of, like, or by means of, a speculum —**spec'u·larly** *adv.*

spec·u·late (spek'yə lāt') *vi.* **--lat'ed, --lat'ing** [< L *speculatus,* pp. of *speculari,* to view < *specula,* watchtower < *specere,* to see: see SPY] 1 to think about the various aspects of a given subject; meditate; ponder; esp., to conjecture 2 to buy or sell stocks, commodities, land, etc., usually in the face of higher than ordinary risk, hoping to take advantage of an expected rise or fall in price; also, to take part in any risky venture on the chance of making huge profits —*SYN.* THINK[1] —**spec'u·la'·tor** *n.*

spec·u·la·tion (spek'yə lā'shən) *n.* 1 *a)* the act of speculating, or meditating *b)* a thought or conjecture 2 *a)* the act of speculating in stocks, land, etc. *b)* a speculative business venture

spec·u·la·tive (spek'yə lāt'iv, -lə tiv) *adj.* [ME *speculatif* < MFr < LL *speculativus*] 1 of, characterized by, or having the nature of, speculation or meditation, conjecture, etc. 2 theoretical, not practical 3 of or characterized by financial speculation 4 uncertain; risky 5 indulging in or fond of speculation —**spec'u·la'·tively** *adv.*

specu·lum (spek'yə ləm) *n., pl.* **-la** (-lə) or **--lums** [L, a mirror < *specere,* to look: see SPY] 1 *a)* a mirror, esp. one of polished metal *b)* [Historical] such a mirror in a reflecting telescope 2 *Med.* an instrument for dilating a passage or cavity to facilitate its examination 3 *Zool.* a distinctive patch of color on the wings of certain birds, esp. ducks

speculum metal an alloy of copper and tin that will take a mirrorlike polish, used for making mirrors

sped (sped) *vi., vt. alt. pt. & pp. of* SPEED

speech (spēch) *n.* [ME *speche* < OE *spæc, spræc* < base of *sprecan,* to speak: see SPEAK] 1 the act of speaking; expression or communication of thoughts and feelings by spoken words 2 the power or ability to speak 3 the manner of speaking *[her* lisping *speech]* 4 that which is spoken; utterance, remark, statement, talk, conversation, etc. 5 a talk or address given to an audience 6 the language used by a certain group of people; dialect or tongue 7 the study of the theory and practice of oral expression and communication 8 [Archaic] rumor; report

SYN.—**speech** is the general word for a discourse delivered to an audience, whether prepared or impromptu; **address** implies a formal, carefully prepared speech and usually attributes importance to the speaker or the speech *[an address* to a legislature*]*; **oration** suggests an eloquent, rhetorical sometimes merely bombastic speech, esp. one delivered on some special occasion *[political orations* at the picnic*]*; a **lecture** is a carefully prepared speech intended to inform or instruct the audience *[a lecture* to a college class*]*; **talk** suggests informality and is applied either to an impromptu speech or to an address or lecture in which the speaker deliberately uses a simple, conversational approach; a **sermon** is a speech by a clergyman, intended to give religious or moral instruction and usually based on Scriptural text

speech clinic a clinic for treating speech disorders

speech community all the people speaking a particular language or dialect, whether in a single geographical area or dispersed throughout various regions

speech disorder any conspicuous speech imperfection, or variation from accepted speech patterns, caused either by a physical defect in the speech organs or by a mental disorder, as aphasia, stuttering, etc.

speech form LINGUISTIC FORM

speechi·fy (spē'chə fī') *vi.* **--fied', --fy'·ing** to make a speech: used humorously or contemptuously —**speech'i·fi'er** *n.*

speech·less (spēch'lis) *adj.* 1 incapable of speech; lacking the ability to speak 2 temporarily unable to speak; silent, as from shock 3 not expressed or expressible in words *[speechless* terror*]* —*SYN.* VOICELESS —**speech'·lessly** *adv.* —**speech'·less·ness** *n.*

speech·maker (-māk'ər) *n.* a person who makes a speech or speeches; orator —**speech'·mak'·ing** *n.*

speech·writer (-rit'ər) *n.* a person whose work is writing speeches as for a political candidate or officeholder

speed (spēd) *n.* [ME *sped* < OE *spæd,* wealth, power, success, akin to *spowan,* to prosper, succeed < IE base **spēi-,* to flourish, expand > SPACE, SPARE] 1 the act or state of moving rapidly; swiftness; quick motion 2 *a)* the rate of movement or motion; VELOCITY (sense 2*a*) *b)* the magnitude of a VELOCITY (sense 2*b*) *c)* the rate or rapidity of any action *[reading speed]* 3 a gear or arrangement of gears for the drive of an engine or bicycle *[*a truck with five forward *speeds]* 4 [Informal] one's kind or level of taste, capability, etc. ⋆5 [Slang] any of various amphetamine compounds, esp. methedrine 6 [Archaic] luck; success; prosperity *[*to wish someone good *speed]* 7 *Photog. a)* the sensitivity of film to light, expressed in various numerical scales *b)* the widest effective aperture of a camera lens (see also F-NUMBER) *c)* the length of time the shutter is opened for an exposure —*adj.* of or having to do with speed —*vi.* **sped** or **speed'ed, speed'·ing** 1 to move rapidly, esp. more rapidly than is safe or allowed by law 2 [Archaic] *a)* to get along; fare *b)* to have fortune, good or bad *c)* to have good fortune; prosper; succeed —*vt.* 1 to help (a project) to succeed; aid; promote 2 to wish Godspeed to *[to speed* the parting guest*]* 3 to send, convey, or cause to move, go, etc. swiftly *[to speed* a letter on its way*]* 4 to cause or design (a machine, etc.) to operate at a certain speed or speeds 5 [Archaic] to cause to succeed or prosper —*SYN.* HASTE — **at speed** [Chiefly Brit.] quickly; rapidly —**speed up** to increase in speed; go or make go faster; accelerate —**up to speed** 1 working or operating at full speed, maximum efficiency, etc. 2 [Informal] fully informed or having enough information

⋆**speed·ball** (spēd'bôl') *n.* [Slang] a dose of a depressant mixed with a stimulant, as heroin or morphine mixed with cocaine or an amphetamine

speed·boat (-bōt') *n.* a motorboat built for speed

speed brake an airplane flap designed to decrease flight speed, esp. when landing

⋆**speed bump** a raised concrete ridge, as in a parking lot, to discourage fast driving by jolting a car driving over it

speeder (-ər) *n.* ⋆a person or thing that speeds; esp., a motorist who drives faster than is safe or legal

speed·ing (-iŋ) *n.* ⋆the act of driving a motor vehicle at a higher speed than is safe or legal

speed metal a style of heavy-metal rock music that emphasizes

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: DONALD GILBERT CARPENTER Art Unit: 2834

Serial No.: 09/935,936

Filed: August 23, 2001

For: Energy Conversion Technique Examiner: Nicolas Ponomarenko

Declaration Under 37 C.F.R. ¶ 132

I, the undersigned Dr. Donald G. Carpenter, residing at 3010 River Mist Grove, Colorado Springs, CO 80922-5201 declare as follows:

I am a retired Air Force Colonel, pilot and Commander who has strong credentials and success in both academic and industrial careers.

Academically, I have a Ph.D. and a master's degree in nuclear engineering, plus bachelor degrees in physics, electrical engineering, and electronic engineering technology. I taught physics for seven years at the United States Air Force Academy, holding during that time an Associate Professorship. I created the space physics course at the Air Force Academy, editing and writing much of the 700+ page textbook for that course. I retired as a full Professor of physics (Chapman College) and full Professor of electrical engineering (Colorado Technical University), and Dean of electrical engineering and computer engineering (Colorado Technical University).

My published works include 27 scientific papers and books. Other scientific efforts include numerous published letters, abstracts and invited talks. I was, while on active duty in the Air Force, a recipient of the Theodore von Karman Award (for science and engineering) for dramatic improvement in the accuracy of the SPACETRACK System for tracking Earth-orbiting satellites.

Also, while on active Air Force duty, I received the Legion of Merit for management of the 16th Surveillance Squadron (a SPACETRACK radar organization in the Aleutian Islands). I subsequently commanded a worldwide AF operations organization. My last active duty position before retiring from the Air Force was Chief of Space Surveillance. I was, moreover, in charge of systems engineering (electronic) for Contel's contract to provide ground/space telecommunications at Falcon Air Base (Space Command); and was a principal engineer in enabling Falcon to function well.

Following my retirement from active Air Force duty I worked for COLSA as a telecommunications consultant to the Royal Saudi Air Defense Forces.

Among my further technical and scientific achievements, I was the first scientist to warn and prove theoretically (*Journal of Geophysics*) that nuclear reactors in orbit about Earth would

significantly increase the geomagnetically-trapped corpuscular radiation; subsequent Japanese experience with Russian Earth-orbiting reactors proved my analysis to be correct.

I also have held various other positions such as Senior Research Fellow for the International Society for Scientific Enquiry (ISPE).

Experimental Apparatus

The Experimental Apparatus equipment described herein is of minimum accuracy and precision, difficult to use, but quite inexpensive (see Figure 1). It is similar to that of a double pendulum. A wooden bar is supported at each end. Hanging by stranded picture wires from the wooden bar are two identical metal hex-head screws ([5/8]-11 4) so that, at the bottom of their respective swings, the heads of the screws engage endwise (and compress) a spring mounted between them. Each screw is suspended by two stranded wires, and each of those wires has one end attached to its own small hook screwed into one side of the wooden bar with the other end of the wire similarly attached to the other side of the wooden bar.

The screws are operated by swinging each of them back from the other, gaining potential energy as they necessarily rise to a pre-selected 'standard location'. They are released, allowing the potential energy to convert to kinetic energy as they return to their former lower positions and deposit the kinetic energy into the spring. The spring is made of 15 turns of number 19 steel wire coiled 33 millimeters long and of 11 millimeters outside diameter. Each screw head is larger than the diameter of the spring.

As shown in Figures 2 and 3, three paper cylinders are needed, with the first nested inside the second which is nested inside the third, so that each of the two nested cylinders slide relatively freely within the next larger cylinder. Their summed length needs to total greater than the length of the spring, each cylinder itself being less than 50% of the length of the spring (Figure 1). They are positioned in partially-nested fashion within the spring (Figure 3) so that their combined partially-nested length is the same as that of the 33 millimeter spring. Together, the spring and its enclosed partially-nested paper cylinders form an energy sensor. It is necessary that the paper cylinders have a small but non-zero amount of friction with respect to each other. Too little friction and the impact of the screw will cause the paper cylinders to over-respond; too much friction and the paper cylinders will not respond adequately. "Super Glue," a trademarked product is suitable for making the paper cylinders, but care must be taken to insure that the friction among the cylinders is adequate for the purpose of the experiment.

Experiment and Resultant Data

The experiment is tried three different times under each of three different conditions. The first condition is that the spring is suspended on thread below the wooden bar such that the screw heads will engage and compress it at their maximum speed (bottom of their paths). Before each trial, the partially-nested paper cylinders are placed within the spring so that one end of the largest cylinder is at one end of the spring and the contiguous opposite end of the smallest cylinder is at the other end of the spring. The length of the spring is recorded (x_0). Each screw is drawn back to its standard location, and they are released simultaneously. As the spring is struck on both ends approximately simultaneously and compressed, the total contiguous length of the

partially-nested paper cylinders is reduced as shown in Figure 4. The new total length of the paper cylinders is measured after the system has settled down, and that length is recorded (x_1). The difference between it and the recorded, uncompressed spring length yields a measure (x_0-x_1=Δx_1) of the amount the spring was compressed. After this has been done three times, the results are averaged, and the average value (Δx_{1A}) is recorded to a precision of one millimeter for this first condition.

The second condition, illustrated in Figure 5, is that the spring is bonded (with Super Glue) by one end to the head of Screw 1 so that the free end of the spring rests loosely against the head of Screw 2. One end of the partially-nested cylinders is against the Screw 1 end of the spring while the other end of the partially-nested cylinders is at the other end of the now-cantilevered spring. Screw 1 is fixed in position so that it will not move when the spring is struck by the head of Screw 2. Screw 2 is withdrawn to its standard position and released. Again the resultant total length of the nested cylinders (x_2) is measured, and the magnitude of the spring compression found (x_0-x_2=Δx_2). After this has been done three times and the results averaged, the average value (Δx_{2A}) is recorded to a precision of one millimeter for this second condition.

The third condition, shown in Figure 6, is similar to the second condition in that one end of the spring is still bonded to Screw 1, and the free end of the spring rests loosely against the head of Screw 2. One end of the partially-nested cylinders remains at the other contiguous end of the cantilevered spring. Screw 1 and Screw 2 are each withdrawn to their standard locations and released simultaneously. Again the total length of the nested cylinders (x_2) is measured, and the magnitude of the spring compressed found (x_0-x_3=Δx_3). After this has been done three times and the results averaged, the average value (Δx_{3A}) is recorded to a precision of one millimeter for this third condition.

Theory

The spring and nested cylinders form an energy sensing device. When, as shown in Figure 5, a single moving screw and a single stationary screw compress the spring, the magnitude of the Force (**F**) exerted on the spring at each instant is $\mathbf{F}=k(\Delta x)$, where k is the spring constant and (Δx) is the amount of compression. Force through differential distance ($\mathbf{d}[\Delta x]$) is the differential Energy (dE) or work, which in integrated form for the second condition is $\mathbf{E}_{2A}=(\Delta x_{2A})^2(k/2)$. The value of $\mathbf{E}_{2A}$ is the potential energy of a suspended single Screw before release from its standard location, and that same Screw's kinetic energy as it initially encounters the near end of the spring.

The value of $\mathbf{E}_{1A}$ is the average of the sum of the potential energies of the two Screws ($\mathbf{E}_{1A}=2\mathbf{E}_{2A}$) that is deposited into the spring. Note that this conforms to the law of conservation of energy, and should be equal to approximately two times the potential energy of one screw.

The value of $\mathbf{E}_{3A}$ (illustrated in Figure 6) is a bit more of a problem for both minor and major reasons. The spring and nested paper cylinders are now part of Screw 1. The law of conservation of energy says that, when viewed from the position of the experimenter, the energy measured must equal approximately the sum of the potential energies ($\mathbf{E}_{1A}$) of the two screws at their standard locations, which is about two times the potential energy ($\mathbf{E}_{2A}$) of one screw at its

standard position. The word approximately is used because the mass of Screw 1 now includes the mass of the spring and nested paper cylinders with glue. This, though, is a minor problem because the combined mass of the spring, nested paper cylinders, and dried glue is a very small fraction of the mass of a screw. The increase in energy expended is, thus, a minor fraction of the kinetic energy of one screw alone.

The major problem is that the energy measuring device is now part of Screw 1's system. It does not 'see' itself as moving but does see the Screw 2 system approaching a speed 2v. This view is part of the concept first enunciated by Jules Henri Poincaré*: the laws of physics are the same in every frame of reference that is moving linearly with respect to each other. This means that $E_{3A}=4E_{2A}=2E_{1A}$ instead of $E_{3A}=2E_{2A}=E_{1A}$, as anticipated by the law of conservation of energy. Thus, because $E_{3A}-2E_{2A}=2E_{2A}$, an extra $2E_{2A}$ becomes available that comes from some source, the nature of which is not at all clear at this writing.

Results

The experimental results are shown in Table 1. Due to the lack of precision with these present experimental components, all numbers are rounded to the nearest millimeter, or to the nearest whole number in the case of fractions.

TABLE 1: Experimental Results

Condition	*Spring Length (mm)*		Δx_{CA}	$(\Delta x_{CA})^2$	$E_{CA}=(\Delta x_{CA})^2(k/2)$	E_{CA}/E_{2A}
	Original	Compressed				
C=1 (Cons. Energy)	33	26	7	49	49(k/2)	2
C=2 Cantilevered, One Screw, Immobilized	33	28	5	25	25(k/2)	1
C=3 Cantilevered, Both Screws Moving	33	23	10	100	100(k/2)	4

Conclusions

With respect to condition 1, the laws of conservation of momentum and conservation of energy both pertain. Both conservation of momentum and conservation of energy also pertain in condition 2. For condition 3, the law of conservation of momentum pertains and the law of conservation of energy is believed to pertain, the 'extra' energy ($2E_{2A}$) that appears in condition 3 coming from some source not previously recognized in such cases.

It must be emphasized that the device described in the instant patent application is no more a 'perpetual motion' machine than is a hydroelectric transformer. We do not know for

certain at this time from where the extra energy comes for this simple experiment just as we also do not know why a wire moving at a right angle (relative to a magnetic field) through a magnetic field produces an electrical potential between the two ends of the wire. Thus, we do not know why a hydroelectric generator works.

Turning to the claimed invention, it matters not from whence this energy actually comes, it only matters that the claimed apparatus is a device that accesses this energy form without regard to the source of the energy.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Date MARCH 4, 2003

Donald G. Carpenter

Reference

* H. Poincaré, 'L'etat Actuel et L'avenir de la Physique Mathematique' (The actual state and the path of mathematical physics) is the name of a lecture given at the St. Louis Conference, USA, 1904 September 24 (This information from the notes of Walter van der Kamp [died: 1998 January 26] was courteously supplied by C. van der Kamp 1998 August 25, Semi-private Communication).

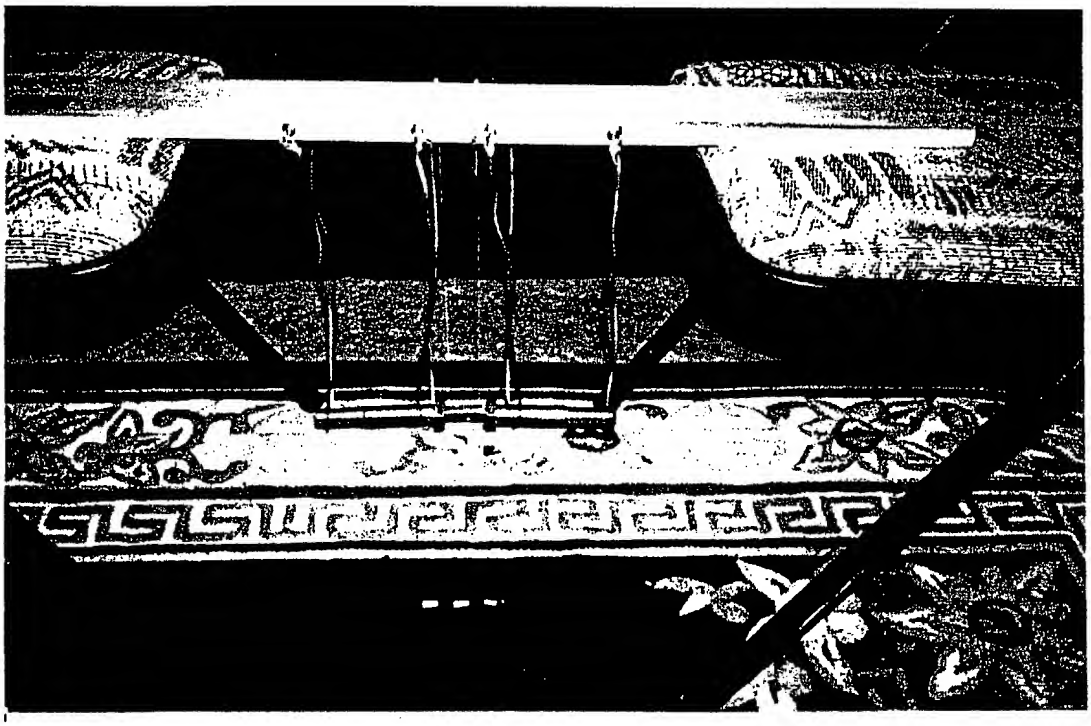

Figure 1

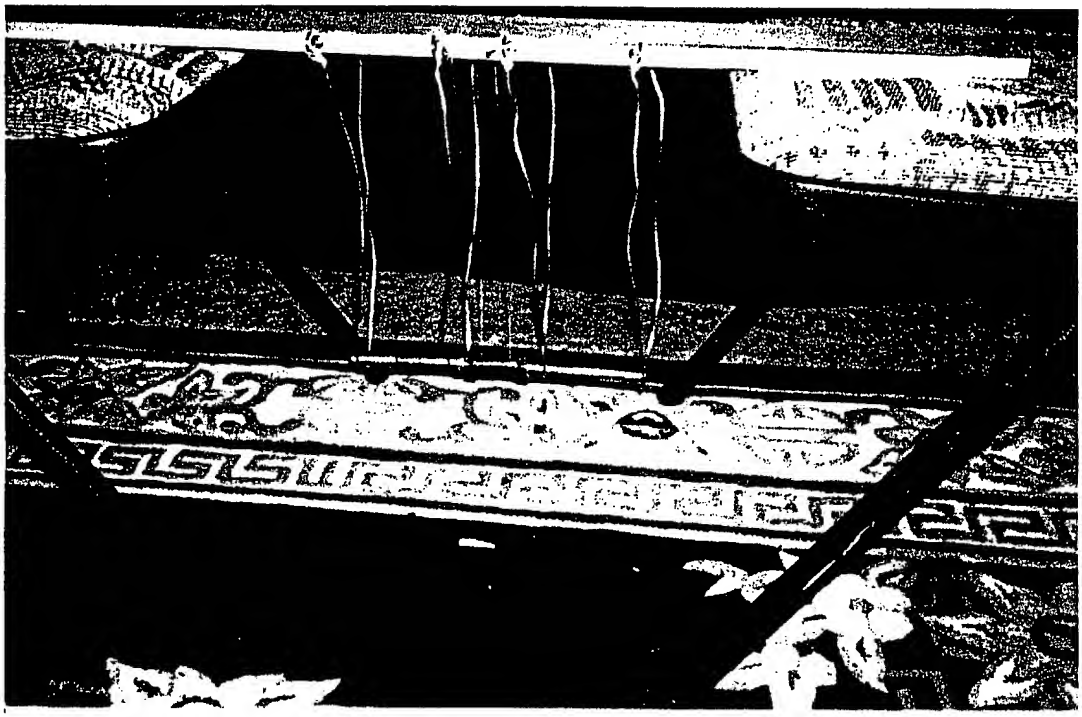

Figure 2

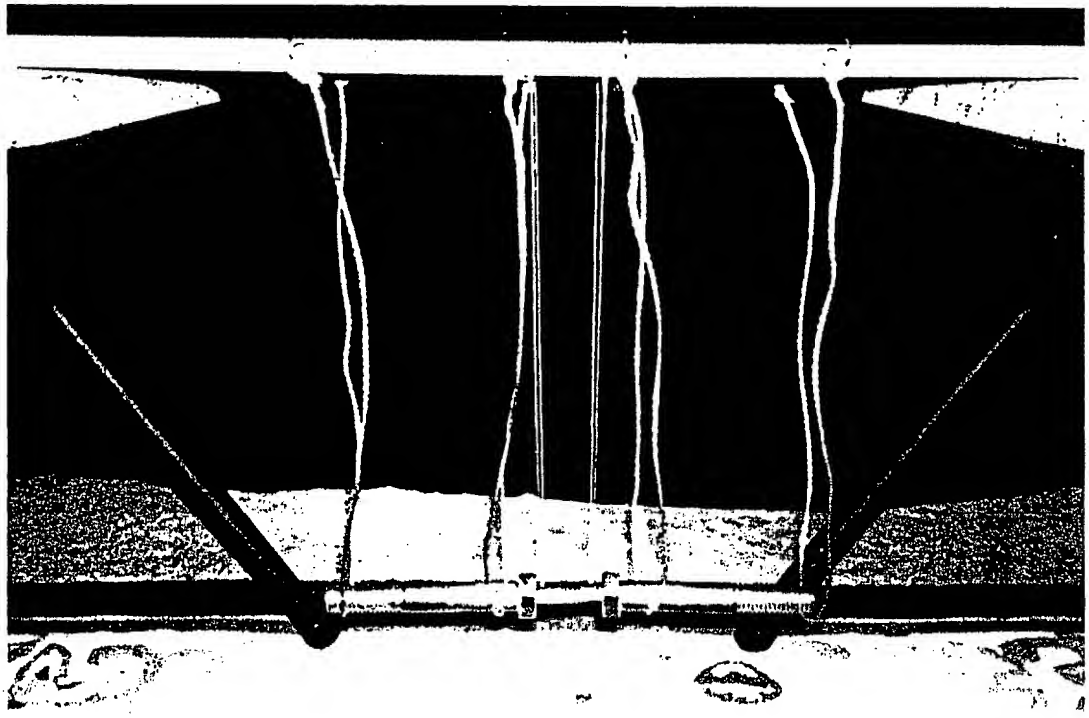

Figure 3

Figure 4

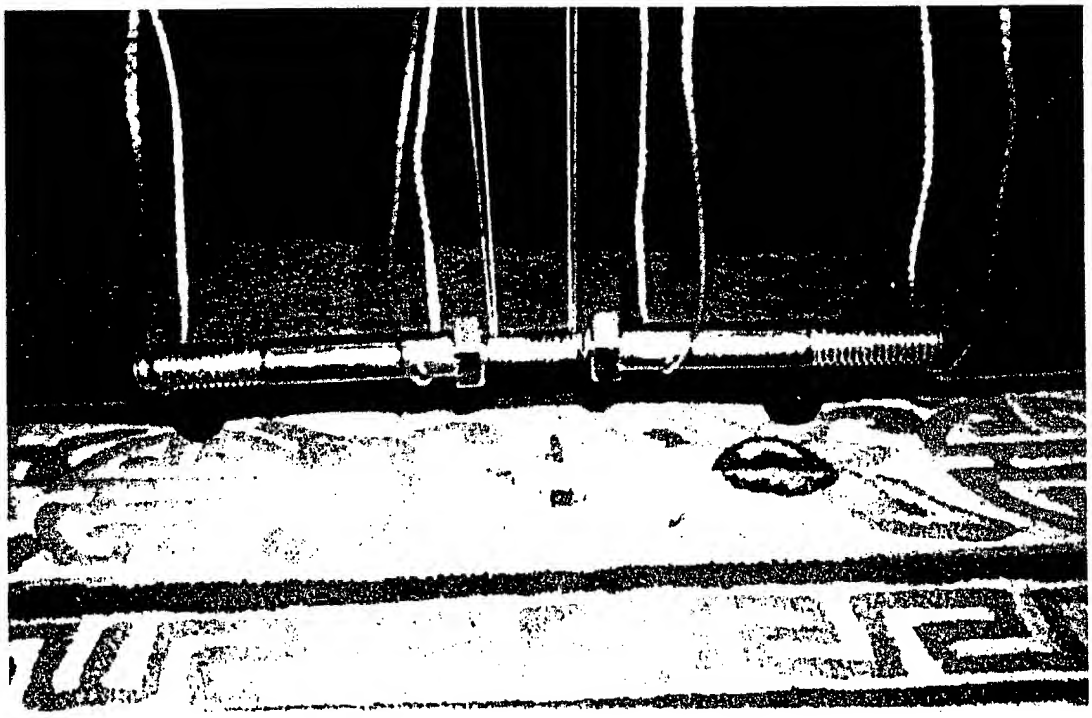

Figure 5

Figure 6